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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,216	06/24/2004	Yuichi Hikichi	61534 (46342)	3278

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EDWARDS & ANGELL, LLP
P.O. BOX 55874
BOSTON, MA 02205

EXAMINER	
MEAH, MOHAMMAD Y	
ART UNIT	**PAPER NUMBER**
1652	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/500,216	HIKICHI ET AL.	
	Examiner	Art Unit	
	Mohammad Meah	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *28-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *28-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 28-34 are for examination.

Priority

Acknowledgement is made of applicant's PCT priority date based on application filing date of 12/27/2002 in Japan # PCT/JP02/13640.

Claim Rejections

35 U.S.C 112

> The following is a quotation of the second paragraph of 35 U.S.C. 112:
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 28-34 rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Claims 28-34 are confusing and indefinite because it is unclear whether steps (a) and (b) are separate reactions or sequential steps that are performed on the same reaction.

35 U.S.C 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact

terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 28, 30-32 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for method of identifying inhibiting agents for histone methyl transferase of SEQ ID NO: 1 and then identifying the agents to use as a therapeutic agent for breast cancer or apoptosis inducer does not reasonably provide enablement for methods of identifying any agent to prevent breast cancer. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/use the invention commensurate in the scope with these claim.

The claims broadly recite the use of method identifying any agent to prevent breast cancer. The specification fails to describe how histone methyl transferase inhibitor will prevent breast cancer. Breast cancers are caused by numerous genetic and other biological factors (Garrett et al Europian J. of cancer 1999, 35, 2010-2030). Although some type of breast cancer is caused by conditions affected by histone methyl transferase activity, breast cancer is caused by a wide variety of conditions (Garrett et al Europian J. of cancer 1999, 35, 2010-2030) which are unrelated to histone methyl transferase activity, and applicant's method identifying inhibitor of histone methyl transferase will not provide compounds which would prevent breast cancer because said inhibitor will not prevent breast cancers that are caused by other

various genetic and biological factors. At best one could expect a HMT inhibitor to reduce the risk of occurance of breast cancer by eliminating HMT-induced breast cancer. Therefore a skilled artisan would not find it reasonable that any breast cancer can be prevented by a histone methyl transferase inhibitor.

Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claims broadly including methods of preventing breast cancer with any histone methyl transferase inhibitor. The scope of the claims must bear a reasonable correlation with the scope of enablement (In re Fisher, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of substances having the desired biological characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue.

CLAIM Rejection - 35 U.S.C 103a

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negatived by the manner in which the invention was made.

Claims 28-30 are rejected under 35 U.S.C. 103(a) by Jenuwein et al. (US PAT 6555329 B2 in view of Jenuwein et al. (US PAT 6689583).

Jenuwein et al. (US PAT 6555329 B2) teaches methods of screening modulators of histone methyl transferase comprising amino acid sequence of SEQ ID NO: 7 (56% identical to SEQ ID NO: 1), and suggested them as therapeutic agent for cancer and apoptosis inducer (page 14 paragraph 20-45).

Jenuwein et al. (US PAT 6689583). teach a histone methyltransferase protein of SEQ ID NO: 4 which has 100% sequence identity with the SEQ ID NO: 1 of the present application. Jenuwein et al. (US PAT 6689583). used radio-labeled methyl group of S-adenosyl-L-methionine to measure the said methyl group transfer to N-terminal lysine residue (lysine 9 of H3 N-terminus) of histone polypeptide (page 6 lines 30-60).

As such it would have been obvious to one of ordinary skill in the art to use Jenuwein et al's (US PAT 6689583) histone methyltransferase protein of SEQ ID NO: 4 (which has 100% sequence identity with the SEQ ID NO: 1 of the present application) and Jenuwein et al's (US PAT 6689583) assay method comprising radio-labeled methyl group of S-adenosyl-L-methionine in measuring the methyl transfer to N-terminal lysine residue (lysine 9 of H3 N-terminus) of histone methyltransferase polypeptide and use the said histone methyltransferase polypeptide and assay method comprising radio-

labeled methyl group of S-adenosyl-L-methionine to measure the methyl transfer to N-terminal lysine residue to screen modulators of histone methyl transferase as therapeutic agent for breast cancer and apoptosis inducer as taught by Jenuwein et al. (US PAT 6555329 B2).

Applicant's argument against 103 rejection is considered but not found persuasive as explained above and below:

Applicant argue in page 7 of their amendment that claims 28 and 30 of instant application are novel because instant application show SUV39H1 expressed in breast cancer cell and is involved in breast cancer cell growth and these have not been taught by Jenuwein et al. (US PAT 6555329 B2 or Jenuwein et al. (US PAT 6689583). These are not found to be true as stated earlier Jenuwein et al (US PAT 6555329 B2 , page 13). teach SUV39H1 expresses in tumor cell and involves in tumor growth and suggested that HMTase inhibitor will be useful in cancer therapy (US PAT 6555329 B2 , page 13).

Applicant argue in pages 7-9 of their amendment that claims 29 and 33 of instant application are novel because Hmtase of Jenuwein et al. (US PAT 6555329 B2) is only 57% identical to applicant HMTase or that of Jenuwein et al. (PAT 6689583) and Hmtase of Jenuwein et al. (US PAT 6555329 B2) and applicant Hmtase is quite different and teaching of Hmtase of Jenuwein et al. (US PAT 6555329 B2) will not motivate one to use Hmtase of PAT 6689583. These are not found to be true because Jenuwein et al. (Pat 6689583) suggest the modulation the HMTase of SEQ

ID NO: 4 which has 100% sequence identity with the SEQ ID NO: 1 of the present application for controlling tumor growth (abstract). Furthermore both HMTases. (US PAT 6555329 B2) and (Pat 6689583) perform the same reaction whether thay have or have not have exact same structure. Therefore one knowledgeable in prior art will use Jenuwein et al's (US PAT 6689583) histone methyltransferase protein of SEQ ID NO: 4 (which has 100% sequence identity with the SEQ ID NO: 1 of the present application) upon the teaching and suggestion of Jenuwein et al. (US PAT 6555329 B2) in the methods of screening modulators of histone methyl transferase and suggestion to use them as therapeutic agent for cancer and apoptosis inducer (page 14 paragraph 20-45) as taught by Jenuwein et al. (US PAT 6555329 B2).

Claims 31-34 are rejected under 35 U.S.C. 103(a) by Kouzarides et al. (WO 02/090578) in view of Jenuwein et al. (US PAT 6689583).

Kouzarides et al. teaches methods of screening modulators of histone methyl transferase by measuring the methylated and unmethylated histone polypeptide reacted with s-adenosyl-L-methionine in presence of test compound using MALDI Mass spectrometry and suggested them as therapeutic agent for cancer and apoptosis inducer.

Jenuwein et al. (US PAT 6689583). teach a histone methyltransferase protein of SEQ ID NO: 4 which has 100% sequence identity with the SEQ ID NO: 1 of the present application. Jenuwein et al. also suggested the use of Mass spectrometry (merely an

assay method) to identify modulators Suv39h (SEQ ID NO: 4 (Page 12 paragraph 12-30).

As such it would have been obvious to one of ordinary skill in the art to use Jenuwein et al's (US PAT 6689583) histone methyltransferase protein of SEQ ID NO: 4 (which has 100% sequence identity with the SEQ ID NO: 1 of the present application) and use MALDI Mass spectrometry as taught by Kouzarides et al. to screen modulators of said histone methyl transferase and use it as therapeutic agent for breast cancer and apoptosis inducer.

Applicant's argument against 103 rejection is considered but not found persuasive as explained above and below:

Applicant argue in pages 9- 10 of their amendment that claims 31-34 of instant application are non-obvious because instant application use MALDI mass spectrometry for different purpose (i.e., to screen modulator of HMTase) than that of Kouzarides et al and Jenuwein et al's (i.e., Kouzarides et al use MALDI mass spectrometry to measure set of protein by measuring methylated and unmethylated Histone polypeptide and Jenuwein et al's use MALDI mass spectrometry for SUV39h substrate). These are not found to be true because it is immaterial what is the purpose the method of MALDI mass spectrometry detect the similar substances (i, e methylated and unmethylated substances to find out the extend of methylation) and it is obvious one skilled in prior art to use the same method of MALDI mass spectrometry

that used by Kouzarides et al and Jenuwein et al's to screen modulators of said histone methyl transferase.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Meah whose telephone number is 571-272-1261. The examiner can normally be reached on 8:30-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mohammad Younus Meah, PhD

Examiner, Art Unit 1652

Recombinant Enzymes, 3C31 Remsen Bld

400 Dulany Street, Alexandria, VA 22314

Telephone: 517-272-1261

Mohammad Younus Meah, PhD

Examiner, Art Unit 1652

Recombinant Enzymes, 3C31 Remsen Bld

400 Dulany Street, Alexandria, VA 22314

Telephone: 517-272-1261

REBECCA E. PROUTY
PRIMARY EXAMINER
GROUP ~~1650~~
1600